VISIONARY SOLUTIONS

# PACKETV®

## Modular End-to-End IPTV Solution

**PackeTV®** is Visionary Solutions' modular end-to-end IP video management solution that enables secure scheduled and on-demand delivery of live and recorded video to any screen across a wide range of networks.

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## Dynamic and Secure Multi-Screen Video Delivery Solution

### *What does PackeTV® do?*

- Provides a single, end-to-end IPTV solution
- Makes the delivery of high-quality HD/SD video content to multiple devices simple and cost-effective
- Features an open-standard design, compatible with third-party equipment for quick and easy deployment
- Modular architecture allows users to upgrade as their budget permits and needs change

### *Who is PackeTV® for?*

- **PackeTV®'s** price point, flexibility, and ease of use and installation makes it easy to deploy in any IT environment.
- **PackeTV®** delivers high-quality HD/SD MPEG-2/H.264 video content to TVs, set-top boxes (STBs), PCs, tablets, smartphones, and other IP-connected devices.
- **PackeTV®** supports a variety of applications, including corporate communications, video monitoring, training and distance learning, and legacy cable system replacement with TV over IP.
- **PackeTV®** allows any organization to deliver real-time and recorded video over LAN, WAN, WiFi, cellular, and the public Internet.
- **PackeTV®** is the ideal IP video management system for the following markets:

| | | |
|---|---|---|
| • **Corporate** | • **Entertainment** | • **Hospitality** |
| • **Education** | • **Government** | • **House of Worship** |
| • **Enterprise** | • **Healthcare** | • **Information Technology** |

## About Visionary Solutions, Inc.

Visionary Solutions, Inc. (VSI) sets the industry standard for high-quality video transport over IP networks, and has been developing IPTV technologies for over a decade. VSI is known for solid performance of embedded appliances, system-level understanding and customer-focused problem solving.

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## *PackeTV® Features and Benefits*

- **Ease of Use -** Multi-screen, browser-based, no install player has an intelligently designed user interface which makes the selection and playback of live and on-demand content simple.
- **Centralized Management -** Through an intuitive, Web-based user interface, administrators can dynamically create and centrally manage video assets for distribution across any type of network. Provisioning and monitoring all IPTV services in local and remote locations is achieved from this single administrator interface.
- **Efficient to Implement -** The straightforward system architecture allows for rapid deployment in virtually any environment. Built-in Windows Active Directory integration makes the implementation of PackeTV® into your I.T. infrastructure fast and seamless.
- **Modular Flexibility -** The modularity of the system provides the flexibility to start small and grow. Adding robust capabilities such as video on demand, network video record, and set-top box management is trouble-free and cost-effective.
- **Open Standard -** Open-standard design ensures compatibility with a variety of third-party equipment, including Visionary Solutions' encoders and decoders. Format-agnostic IPTV delivery platform handles locally produced, off-air, and on-demand video content for playback on PC's, TV's and Mobile devices.
- **Secure -** Video assets are fully protected via AES 256/128-bit encryption, and access can be controlled right down to the individual user and group level through seamless integration with Microsoft Active Directory.
- **Powerful -** With powerful features to enhance the viewing experience, such as a de-interlacing engine for smooth viewing of high motion content, closed captioning, electronic program guide, text overlay, PackeTV® packs professional grade decoding capabilities in thin client architecture with ultra low latency support.

***Contact Us Today to Schedule a Demonstration.***
***805-845-8900  packetv@vsicam.com***

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## The End-to-End PackeTV® Ecosystem Includes:

### *The PackeTV® Core System*

- **PackeTV® Portal -** a powerful web-based administration interface with a familiar look and feel. Provides administrators with total control over the PackeTV® system, including user and group permissions and dynamic video asset creation, management, protection, and distribution.
- **PackeTV® Player** - a browser-based, no-install client that provides CPU-efficient, high-quality playback of live, scheduled, and on-demand streams up to full HD 1920x1080p60.
- **PackeTV® Player *Mobile* -** an integrated mobile player for iPhones, iPads, Android tablets, and smartphones, providing user authentication and full channel guide synchronization.

PackeTV® Portal

### *The PackeTV® System Modules*

- **PackeTV® Video on Demand (VOD) Module -** provides on demand playback of archived/indexed video files and includes library management and search capability.
- **PackeTV® Network Video Record (NVR) Module** - supports scheduled recording and continuous archiving for monitoring and time-shift applications.
- **PackeTV® Set-Top Box (STB) Module** - offers commercial IP set-top box integration into the PackeTV® ecosystem so the entire PackeTV® channel lineup can be viewed on HD or SD TV monitors, secured by AES 256/128-bit encryption and access control.
- **PackeTV® Electronic Program Guide (EPG) Module** - creates an intuitive guide for scheduled programs based on data sourced from the broadcaster. The guide is displayed via an easy-to-read user interface and programs can be effortlessly recorded directly from the electronic programming guide.

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# PACKETV®

## Modular End-to-End IPTV Video Solution

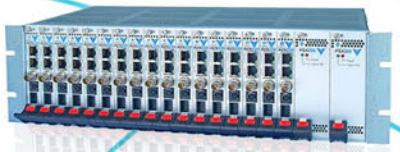
### Sources

Linear Channels

Pre-Recorded Progamming

Live Events

MPP1700 Enclosure with Multiple AVN Encoders



Standalone AVN 441 Encoder

**PackeTV® Core System**

Portal
Player
Player Mobile

**PackeTV® Modules**

Video On Demand (VOD)
Network Video Recorder (NVR)
Set Top Box (STB)
Electronic Programming Guide (EPG)

Network

PackeTV® Portal (Administration)

### Display

PackeTV® Player

PackeTV® Player Mobile

PackeTV® STB

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TVTechnology digital VIDEO VIDEOEDGE

RADIOWORLD Radio

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# PackeTV IPTV System

Visionary Solutions' PackeTV is an end-to-end modular-based IP video network and asset management solution that enables secure scheduled or on-demand delivery of live and recorded video. Through PackeTV, organizations can easily and cost-effectively deliver high-quality HD and SD, MPEG-2/H.264 video content to TVs, set-top boxes (STBs), PCs, tablets, smartphones and other IP-connected devices across a wide range of networks, including LAN, WAN, Wi-Fi, cellular and the public Internet.

The open-standard solution is compatible with a wide range of equipment, including Visionary Solutions' encoders and decoders, and features the same modular architecture as the encoder and decoder product lines, allowing customers to upgrade as their budget permits. This modular flexibility lowers the base price of the equipment by allowing the customer to purchase only the features they need at the moment and upgrading the software as requirements change.

The PackeTV platform can quickly and easily be deployed in virtually any IT environment, including the enterprise, entertainment, education, healthcare, broadcast and house of worship markets, to support a variety of applications from corporate communication to video monitoring, training and distance learning, and legacy cable system replacement with TV over IP.

Through an intuitive, web-based user interface, administrators can dynamically create and manage video assets for distribution across any type of network. Video assets are fully protected via AES 256/128-bit encryption, and access can be controlled down to the individual user and group level through seamless integration with Microsoft Active Directory®. Compatibility with Visionary Solutions' encoders and decoders provides customers with the complete IPTV ecosystem.

**PackeTV Ecosystem**

The end-to-end PackeTV Ecosystem includes:

**The PackeTV Core System®, which comprises:**

• PackeTV® Portal, a powerful web-based administration interface that offers total control over the PackeTV system, including user and group permissions and dynamic video asset creation, management, protection and distribution.

- PackeTV® Player, a browser-based, no-install player that provides CPU-efficient, high-quality playback of live, scheduled and on-demand streams up to full HD 1920 x 1080 60p.
- PackeTV® Player Mobile, an integrated player for iPhones®, iPads®, Android™ tablets, and smartphones providing user authentication and full channel guide synchronization.

**The PackeTV® System Modules, which are:**

- PackeTV® Video on Demand (VOD) Module, provides on-demand playback of archived/indexed video files, including library management and search capability.
- PackeTV® Network Video Record (NVR) Module, supports scheduled recording and continuous archiving for monitoring and time-shift applications.
- PackeTV® Set-Top Box (STB) Module, offers commercial IP STB integration into the PackeTV ecosystem so the entire PackeTV channel lineup can be viewed on HD or SD TV monitors, secured by AES 256/128-bit encryption and access control.
- PackeTV® Electronic Program Guide (EPG) Module, creates an intuitive guide for scheduled programs based on data sourced from the broadcaster. The guide is displayed via an easy-to-read user interface and programs can be effortlessly recorded directly from the electronic programming guide.

PackeTV streamlines video distribution to any screen through the following technical features and benefits.

**Technical Highlights**

- Supports HD and SD live and on-demand streams in MPEG-1/2/4 and H.264 formats.
- Offers viewing frame channel color coding for content classification.
- Browser-based IPTV player supports multiple screens, including TVs, STBs, PCs, tablets and smartphones.
- Creates an electronic program guide (EPG).
- Supports advanced VOD services, including time-shift, pause, resume, and skip ahead/back.
- Full integration with Microsoft Active Directory enables access to live and on-demand content for network users and groups using PCs, STBs and IP-connected devices.

**Key Benefits**

- Provides organizations with a single, end-to-end IP video network solution.
- Centralized management for live streams and stored video assets enables easy access and distribution.
- Ease of use and implementation means it can be quickly deployed in virtually any environment.
- Excellent cost to performance ratio.
- Modular architecture lowers the base price by allowing the customer to purchase only the features they need at the moment and upgrading the software as requirements change.
- Frontline customer support is included.
- Security measures ensure protection of valuable assets.
- Open-standard solution ensures compatibility with a variety of third-party equipment, including Visionary Solutions' encoders and decoders. ■

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# PACKETV® AVN 443 Encoder

## HD-SDI Input H.264 HD IPTV Encoder Blade

Visionary Solutions' AVN443 H.264 Encoder transforms live video sources into full-screen, full resolution, Internet Protocol Digital Video, compatible with multi-cast, webcast and video-on-demand protocols. This high quality H.264 video encoder is suitable for all applications requiring cost-effective, low bit rate, HD or SD video distribution over IP networks.

The AVN443 is a key component of Visionary Solutions' modular, end-to-end PackeTV® IPTV ecosystem, which is the ideal solution for any organization looking to deliver and manage real-time and recorded video over virtually any network.

## *Features*

### Modular Flexibility

The AVN443 features modular firmware architecture, which lowers the base price by allowing the user to purchase only those features they need at the moment, while at the same time maintaining the flexibility to upgrade in the future as requirements change. The list of optional add-on-modules currently include, 720p, 1080i (with 1080p @24 support), 1080p @60, and Forward Error Correction (FEC).

### Superior Audio/Video Quality

H.264 (MPEG-4 Part 10/AVC) hardware compression and Visionary Solutions' optimized transmission technology provide a high or standard definition, full frame rate, IP video stream. The stream can be viewed by an unlimited number of clients on a LAN or WAN provided that bandwidth is available. Image resolutions are configurable based upon purchased modules. The base model includes 480i SD encoding, with Closed Captioning (CC) support. Optional modules allow FEC support and image resolutions to be configured up to 720p, 1080i (with 1080p @24 support) or full 1080p at 60 frames per second. The total bit rate can be configured from 5 to 20 Mbps for HD and 2 to 10 Mbps for SD.
The audio compression is either AAC (128 to 512 kbps audio encoding, average bitrate) or MPEG-1 Layer 2 (64 to 384 kbps audio encoding) with up to 48 kHz sample rate.

### Forward Error Correction

For superior image quality and reliability in the most demanding network video environments, the AVN443, with optional FEC module, incorporates SMPTE-2022 Pro-MPEG FEC Code of Practice #3, Release 1 and 2. This allows FEC enabled receivers to monitor the stream and recover missing packets.

### Closed Captioning

The Using the SDI / HD-SDI input, the AVN443 allows Closed Captioning of both SD and HD signals. Supports EIA-608 and EIA-708.

### Video Inputs

The AVN443 includes one BNC connector for SDI, HD-SDI and 3G inputs, and one HDMI input (DVI-D with optional adaptor cable) for connecting video and audio source equipment.

### Audio Inputs

A terminal block connector provides audio inputs for Balanced and Unbalanced connections. This allows for easy onsite connections regardless of the cabling outputs of the audio source. There are also two RCA audio connectors (L/R) which support only unbalanced connections, and the HDMI input carries audio as well. The AVN443 can also extract embedded audio from the HD-SDI input.

### External Device Connections

The AVN443 includes a serial connection via an RJ-45 connector. This connector can be used as an RS-232 port (full duplex, no hand shaking) or an RS-422 (full-duplex) port. These ports allow the AVN443 to interface with external devices such as terminal emulation equipment.

### Management & Configuration

The AVN443 can be managed and configured via a console menu, a web interface or the AVN Control Protocol API. Internet protocols such as TCP/IP and HTTP are also supported.

AVN 443

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# PACKETV® AVN 443 Encoder

## HD-SDI Input H.264 HD IPTV Encoder Blade

The AVN 443 is designed to be enclosed in the MPP200 or MMP1700 chassis. The MPP200 is a durable, single blade enclosure and the MPP1700 is a high density, rack mountable blade system.

## *Specifications*

### Input/Output

- BNC (SD, HD, 3G) serial digital input with EDH error detection
- BNC (SD, HD, 3G) loop through (re-clocked)
- HDMI or DVI-D with optional adaptor cable
- Terminal block audio connector for Balanced and Un-Balanced Stereo
- RCA Stereo Audio
- RJ-45 Ethernet 10/100
- RJ-45 Serial RS-232C or RS-422

### HD Video Encoding

- H.264 MPEG-4 AVC Compression
- High Profile at level 4 (HP@L4)
- 5Mbps to 20Mbps
- IGMP v1, v2, v3

### SD Video Encoding

- H.264 MPEG-4 AVC Compression
- Main Profile at Level 3 (MP@L3)
- 2Mbps to 10Mbps
- IGMP v1, v2, v3

### Video Resolutions

- 1080p 60 – (requires 1080p60 module)
- 1080p 24 – (requires 1080i module)
- 1080i 59.94/60 – (requires 1080i module)
- 1080i 50 – (requires 1080i module)
- 720p 59.94/60 – (requires 720p module)
- 720p 50 – (requires 720p module)
- 576i 50
- 480i 59.94

### Closed Captioning (CC)

- SDI only (SD/HD/3G) EIA-608 and EIA-708

### Forward Error Correction (FEC)

- SMPTE-2022 Pro-MPEG FEC Code of Practice # 3, Release 1 and 2 – (requires FEC module)

### Audio Encoding

- MPEG-1 Layer II stereo
- 64kbps to 384kbps
- MPEG-2 AAC stereo
- 128kbps to 384kbps

### Dimensions

- (W x D x H)
  40 x 131 x 175 (1.6" x 5.2" x 6.9")

### Weight

- 220g or .49 lb. (approximate)

### Power Input

- DC Input 4.75 Watts
- MPP200 Chassis 100-240VAC 50/60Hz Adapter
- MPP1700 Chassis 100-240VAC 50/60Hz

### Environmental

- Operating Temperature -10°C to 50°C (14°F to 122°F)

### Compliance

- CE, UL Listed I.T.E E257717
- EMC: FCC Part 15 Class A [MPP200] Class A, EN55022 [MPP1700] Class A, EN55022 EN61000-3-2, EN61000-3-3, EN55024
- SAFETY: EN60950-1

## Upgrade Modules

- **Forward Error Correction (FEC)**
- **720p**
- **1080i (1080p @24 support)**
- **1080p @60**

## Related Products

- **Extended Product Warranty**
- **MPP1700**
- **MPP200**
- **PackeTV® IPTV System**
- **PackeTV® STB A140**
- **PackeTV® STB H140**
- **PackeTV® System Protection**

AVN 443 in MPP200 Enclosure

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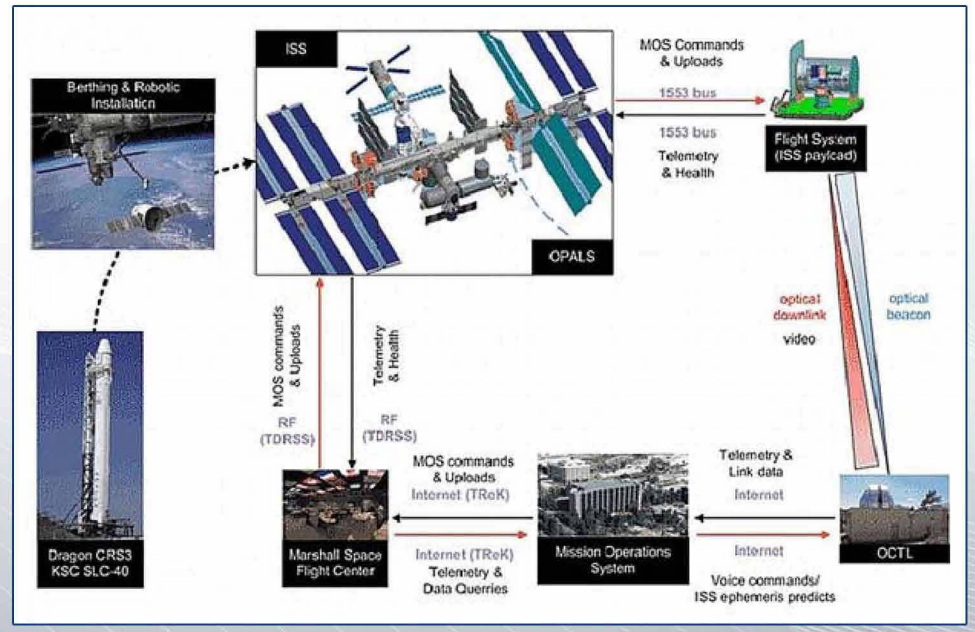
# NASA HDEV Experiment Embraces Innovative Approach to Space Science

Jun 26, 2014 by Andrew Lemert, Visionary Solutions, Inc.

Through the new High Definition Earth Viewing experiment, the International Space Station is offering viewers on Earth a new live video feed of images captured on multiple cameras. Four high-definition cameras by Hitachi, Sony, Panasonic and Toshiba have been attached to the outside of the ISS to capture stunning video of Earth from the station's low-orbit position, approximately 250 miles above the ground. This video is encoded and transmitted to Earth for live streaming on Ustream.com.

NASA has a long history of working with small businesses and entrepreneurial companies on a wide range of products, and the agency dedicates significant funds toward innovative research and technology projects produced by such parties. The HDEV experiment reflects this commitment, as it was made possible by the work of entrepreneurial companies, the contributions of students in the High Schools United with NASA to Create Hardware program, and the high performance and low cost of commercial off-the-shelf cameras and video processing systems, including Visionary Solutions' AVN443 encoder.




*This block diagram shows the signal flow for the HDEV cameras on the International Space Station.*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Numerous systems on board the ISS, including every camera used for astronaut photography, in-flight media interviews, engineering photo documentation, and other imagery needs, are COTS items and always have been. Numerous hardware projects, both on the ISS and other NASA projects, take advantage of COTS items whenever they are a feasible solution. This approach for the HDEV experiment enabled relatively rapid development — a matter of months — by engineers at the Johnson Space Center in Houston, Texas, and students in the HUNCH program who helped to design some of the camera components.

The resulting HDEV experiment incorporates COTS cameras, encoding systems, command and data handling (C&DH) avionics (Ethernet), and a power data distribution box within a single pressurized and temperature-controlled enclosure.

On April 18, 2014, the HDEV enclosure and other technological experiments were hauled from Cape Canaveral to the ISS by the SpaceX unmanned Dragon commercial cargo craft, powered by the company's new Falcon 9 v1.1 rocket. A couple of weeks later, the space station's 12-foot-tall, two-armed Dextre robot was used to move the HDEV housing to a mounting plate on the External Payload Facility of the European Columbus lab module.

*NASA HDEV4 instrument package prior to flight*

The HDEV housing was connected up to the underside of the ISS so that the enclosed Hitachi camera points forward, Sony and Panasonic cameras face aft, and Toshiba camera points nadir, or down toward Earth. Video is captured by these cameras sequentially in a looping cycle, with video from the active camera being compressed by Visionary Solutions' AVN443 encoder into an Ethernet-compatible IP format and delivered to the ISS Columbus module via an Ethernet link.

Use of such a bandwidth-efficient encoding solution helps to make it cost-effective to produce and deliver a high-quality IP video stream from space. For this reason, NASA has employed the system already on multiple internal views. Today, for the HDEV experiment, the combination of Visionary Solutions' H.264 hardware compression with optimized transmission technology enables beaming of a full-frame-rate HD video stream of Earth to Earth for subsequent streaming to virtually any Internet-connected device, anywhere.
When the ISS is in a position to capture video of a slowly rotating Earth illuminated by the sun,

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the live images delivered by the HDEV for public viewing are simply gorgeous. Although this has been an enormously popular result of the HDEV experiment, the primary goal of the project is to gather data on the effects of the space environment — especially cosmic radiation — on both equipment and video quality. With this understanding, NASA will be empowered to make informed decisions about equipment investment for future missions.

*The view from the ISS's HDEV camera package*

Actual exposure to the harsh rigors of space represents the best test of COTS equipment. Still, before launch, NASA performed intensive testing of each system before incorporating it into the HDEV experiment. For example, prior to building the Visionary Systems AVN443 encoder into the HDEV housing, the agency evaluated a number of encoding systems extensively to test factors such as RF emissions and performance in the presence of extreme radiation. Using a lab at the Indiana University Cyclotron facility, NASA emulated the effect of space radiation on each encoder by applying an increasingly powerful photo beam to the unit. Ultimately, the beam applied was increased to 250 rads, which is effectively the exposure equivalent to spending four years in space. In the end, only the AVN443 encoder was able to survive radiation up to 250 rads and continue to self-recover.

In addition to maintaining exceptional performance in high-radiation environments, the encoder has power consumption of fewer than 5 Watts and efficient heat dissipation that, along with a weight of just 220 grams (8 ounces), are particularly valuable in avionics and aerospace applications. Compared with the lightest and most energy-efficient encoding solutions on the market, the AVN443 is more than 50 percent lighter and uses 50 percent less energy.

High-performance COTS systems such as the AVN433 encoder are providing numerous benefits in the realm of space science, and the HDEV experiment continues NASA's validation of an open approach in applying commodity technology to scientific exploration.

For many watching live HD streams of the Earth on their computers and mobile devices, the operational and financial gains yielded by this technical achievement may register as impressive, but the striking live HD images beamed from space are nothing short of magical.

***For additional information, visit us @ vsicam.com***

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# PACKETV® AVN 441 Encoder

## H.264 HD Encoder Blade

Visionary Solutions' AVN441 H.264 Encoder transforms live video sources into full-screen, full resolution, Internet Protocol Digital Video, compatible with multicast, webcast and video-on-demand protocols. This high quality H.264 video encoder is suitable for all applications requiring cost-effective, low bit rate, HD or SD video distribution over IP networks.

The AVN441 is a key component of Visionary Solutions' modular, end-to-end PackeTV® IPTV ecosystem, which is the ideal solution for any organization looking to deliver and manage real-time and recorded video over virtually any network.

## *Features*

### Modular Flexibility

The AVN441 features modular firmware architecture, which lowers the base price by allowing the user to purchase only those features they need at the moment, while maintaining the flexibility to upgrade in the future as requirements change. The list of optional add-on-modules currently include 720p, 1080i (with 1080p @24 support), 1080p @60, and Forward Error Correction (FEC).

### Superior Audio/Video Quality

H.264 (MPEG-4 Part 10/AVC) hardware compression and Visionary Solutions' optimized transmission technology provide a high or standard definition, full frame rate, IP video stream. The stream can be viewed by an unlimited number of clients on a LAN or WAN provided that bandwidth is available. Image resolutions are configurable based upon purchased modules. The base model includes 480i SD encoding, with Closed Captioning (CC) support. Optional modules allow FEC support and image resolutions to be configured up to 720p, 1080i (with 1080p @24 support) or full 1080p at 60 frames per second. The total bit rate can be configured from 5 to 20 Mbps for HD and 2 to 10 Mbps for SD.
The audio compression is either AAC (128 to 512 kbps audio encoding, average bitrate) or MPEG-1 Layer 2 (64 to 384 kbps audio encoding) with up to 48 kHz sample rate.

### Forward Error Correction

For superior image quality and reliability in the most demanding network video environments, the AVN441, with optional FEC module, incorporates SMPTE-2022 Pro-MPEG FEC Code of Practice #3, Release 1 and 2. This allows FEC enabled receivers to monitor the stream and recover missing packets.

### Closed Captioning

The AVN441 allows Closed Captioning of SD signals using the Composite input. EIA-608 is supported.

### Video Inputs

The AVN441 includes three BNC connectors for component YPbPr, RGB, or Composite and one HDMI input (DVI-D with optional adaptor cable) for connecting video and audio source equipment.

### Audio Inputs

A terminal block connector provides audio inputs for Balanced and Unbalanced connections. This allows for easy onsite connections regardless of the cabling outputs of the audio source. There are also two RCA audio connectors (L/R) which support only unbalanced connections, and the HDMI input carries audio as well. The AVN441 features user control of audio parameters, including mute, pre-amp and volume.

### External Device Connections

The AVN441 includes a serial connection via an RJ-45 connector. This connector can be used as an RS-232 port (full-duplex, no hand shaking) or an RS-422 (full-duplex) port. These ports allow the AVN441 to interface with external devices such as terminal emulation equipment.

### Management & Configuration

The AVN441 can be managed and configured via a console menu, a web interface or the AVN Control Protocol API. Internet protocols such as TCP/IP and HTTP are also supported.

AVN 441

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# PACKETV® AVN 441 Encoder

## H.264 HD Encoder Blade

The AVN441 is designed to be enclosed in the MPP200 or MMP1700 chassis. The MPP200 is a durable, single blade enclosure and the MPP1700 is a high density, rack mountable blade system.

## *Specifications*

### Input/Output

Component YPbPr or RGB
Composite
3 x BNC connectors
RCA supported via adaptors

HDMI or DVI-D with opt. adaptor cable

Terminal block audio connector for Balanced and Un-Balanced Stereo

RCA Stereo Audio

RJ-45 Ethernet 10/100

RJ-45 Serial RS-232C or RS-422

### HD Video Encoding

H.264 MPEG-4 AVC Compression

High Profile at level 4 (HP@L4)

5Mbps to 20Mbps

IGMP v1, v2, v3

### SD Video Encoding

H.264 MPEG-4 AVC Compression

Main Profile at Level 3 (MP@L3)

2Mbps to 10Mbps

IGMP v1, v2, v3

### Closed Captioning (CC)

Composite (SD) – EIA-608 only

### Video Resolutions

1080p 60 – (requires 1080p60 module)

1080p 24 – (requires 1080i module)

1080i 59.94/60 – (r equires 1080i module)

1080i 50 – (requires 1080i module)

720p 59.94/60 – (requires 720p module)

720p 50 – (requires 720p module)

576i 50

480i 59.94

### Audio Encoding

MPEG-1 Layer II stereo

64kbps to 384kbps

MPEG-2 AAC stereo

128kbps to 512kbps (average bitrate)

### Dimensions

(W x D x H)
40 x 131 x 175 (1.6" x 5.2" x 6.9")

### Weight

230g or .51 lb. (approximate)

### Forward Error Correction (FEC)

SMPTE-2022 Pro-MPEG FEC Code of Practice # 3, Release 1 and 2 – (requires FEC module)

### Power Input

DC Input 4.25 Watts

MPP200 Chassis 100-240VAC 50/60Hz Adapter

MPP1700 Chassis 100-240VAC 50/60Hz

### Environmental

Operating Temperature -10ºC to 50ºC (14ºF to 122ºF)

### Compliance

CE, UL Listed I.T.E E257717

EMC: FCC Part 15 Class A or B [MPP200] Class B, EN55022 [MPP1700] Class A, EN55022 EN61000-3-2, EN61000-3-3, EN55024

SAFETY: EN60950-1

## Upgrade Modules

- **Forward Error Correction (FEC)**
- **720p**
- **1080i (1080p @24 support)**
- **1080p @60**

## Related Products

- **Extended Product Warranty**
- **MPP1700**
- **MPP200**
- **PackeTV® IPTV System**
- **PackeTV® STB A140**
- **PackeTV® STB H140**
- **PackeTV® System Protection**

AVN 441 with MPP200 Blade Enclosure

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Innovative Network Video Solutions

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# PACKETV® AVN 422 Encoder

## H.264 HD Encoder Blade

Visionary Solutions' AVN422 H.264 Encoder transforms live video sources into full-screen, full resolution, Internet Protocol Digital Video, compatible with multicast, webcast and video-on-demand protocols. This high quality H.264 video encoder is suitable for all applications requiring cost-effective, low bit rate, HD or SD video distribution over IP networks.

The AVN422 is a key component of Visionary Solutions' modular, end-to-end PackeTV® IPTV ecosystem, which is the ideal solution for any organization looking to deliver and manage real-time and recorded video over virtually any network.

## *Features*

### Modular Flexibility

lowers the base price by allowing the user to purchase only those features they need at the moment, while maintaining the flexibility to upgrade in the future as requirements change. The list of optional add-onmodules currently include 720p, 1080i (with 1080p @24 support), 1080p @60, and Forward Error Correction (FEC).

### Superior Audio/Video Quality

H.264 (MPEG-4 Part 10/AVC) hardware compression and Visionary Solutions' optimized transmission technology provide a high or standard definition, full frame rate, IP video stream. The stream can be viewed by an unlimited number of clients on a LAN or WAN provided that bandwidth is available. Image resolutions are configurable based upon purchased modules. The base model includes 480i SD encoding. Optional modules allow FEC support and image resolutions to be configured up to 720p, 1080i (with 1080p @24 support) or full 1080p at 60 frames per second. The total bit rate can be configured from 5 to 20 Mbps for HD and 2 to 10 Mbps for SD. The audio compression is either AAC (128 to 512 kbps audio encoding, average bitrate) or MPEG-1 Layer 2 (64 to 384 kbps audio encoding) with up to 48 kHz sample rate.

### Forward Error Correction

For superior image quality and reliability in the most demanding network video environments, the AVN422, with optional FEC module, incorporates SMPTE-2022 Pro-MPEG FEC Code of Practice #3, Release 1 and 2. This allows FEC enabled receivers to monitor the stream and recover missing packets.

### Video Inputs

The AVN422 includes one HDMI input (DVI-D with optional adaptor cable) for connecting video and audio source equipment.

### Audio Inputs

A terminal block connector provides audio inputs for Balanced and Unbalanced connections. This allows for easy onsite connections regardless of the cabling outputs of the audio source. The HDMI input can carry audio as well.

### External Device Connections

The AVN422 includes a serial connection via an RJ-45 connector. This connector can be used as an RS-232 port (full duplex, no hand shaking) or an RS-422 (full-duplex) port. These ports allow the AVN422 to interface with external devices such as terminal emulation equipment.

### Management & Configuration

The AVN 422 can be managed and configured via a console menu, a web interface or the AVN Control Protocol API. Internet protocols such as TCP/IP and HTTP are also supported.

AVN 422

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# PACKETV® AVN 422 Encoder

## H.264 HD Encoder Blade

The AVN 422 is designed to be enclosed in the MPP200 or MMP1700 chassis. The MPP200 is a durable, single blade enclosure and the MPP1700 is a high density, rack mountable blade system.

## *Specifications*

### Input/Output

- HDMI or DVI-D with optional adaptor cable
- Terminal block audio connector for Balanced and Un-Balanced Stereo
- RJ-45 Ethernet 10/100
- RJ-45 Serial RS-232C or RS-422

### HD Video Encoding

- H.264 MPEG-4 AVC Compression
- High Profile at level 4 (HP @L4)
- 5Mbps to 20Mbps
- IGMP v1, v2, v3

### SD Video Encoding

- H.264 MPEG-4 AVC Compression
- Main Profile at Level 3 (MP@L3)
- 2Mbps to 10Mbps
- IGMP v1, v2, v3

### Forward Error Correction (FEC)

- SMPTE-2022 Pro-MPEG FEC Code of Practice # 3, Release 1 and 2 – (requires FEC module)

### Video Resolutions

- 1080p 60 – (requires 1080p60 module)
- 1080p 24 – (requires 1080i module)
- 1080i 59.94/60 – (r equires 1080i module)
- 1080i 50 – (requires 1080i module)
- 720p 59.94/60 – (requires 720p module)
- 720p 50 – (requires 720p module)
- 576i 50
- 480i 59.94

### Audio Encoding

- MPEG-1 Layer II stereo
- 64kbps to 384kbps
- MPEG-2 AAC stereo
- 128kbps to 512kbps

### Dimensions

- (W x D x H)
  20 x 131 x 175 (.8" x 5.2" x 6.9")

### Weight

- 140g - .31 lb. (approximate)

### Power Input

- DC Input 4.25 Watts
- MPP200 Chassis 100-240VAC 50/60Hz Adapter
- MPP1700 Chassis 100-240VAC 50/60Hz

### Environmental

- Operating Temperature -10°C to 50°C (14°F to 122°F)

### Compliance

- CE, UL Listed I.T.E E257717
- EMC: FCC Part 15 Class A or B
  [MPP200] Class B, EN55022
  [MPP1700] Class A, EN55022
  EN61000-3-2, EN61000-3-3, EN55024
- SAFETY: EN60950-1

## Upgrade Modules

- **Forward Error Correction (FEC)**
- **720p**
- **1080i (1080p @24 support)**
- **1080p @60**

## Related Products

- **Extended Product Warranty**
- **MPP1700**
- **MPP200**
- **PackeTV® IPTV System**
- **PackeTV® STB A140**
- **PackeTV® STB H140**
- **PackeTV® System Protection**

AVN 422 in MPP200 Enclosure

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# PACKETV® AVN 420 Encoder

## H.264 SD Encoder Blade

Visionary Solutions' AVN420 H.264 Encoder transforms live video sources into full-screen, full resolution, Internet Protocol Digital Video, compatible with multi-cast, webcast and video-on-demand protocols. This high quality H.264 video encoder is suitable for all applications requiring cost-effective, low bit rate, SD video distribution over IP networks.

The AVN420 is a key component of Visionary Solutions' modular, end-to-end PackeTV® IPTV ecosystem, which is the ideal solution for any organization looking to deliver and manage real-time and recorded video over virtually any network.

## *Features*

### Superior Audio/Video Quality

H.264 (MPEG-4 Part 10/AVC) hardware compression and Visionary Solutions' optimized transmission technology provides a video imageat full frame rates and D1 resolution.

The video stream can beviewed by an unlimited number of clients on a LAN or WAN with 25fps PAL or 30fps NTSC assured, provided that bandwidth is available.

Image resolutions are configurable from D1 (720x480 NTSC, 720x576 PAL) down to 160x120. The video bit rate can be configured from 100 kbps to 4 Mbps. The audio compression is either AAC or MPEG-1 Layer 2 audio encoding at 8 to 384 kbps with up to 48 KHz sample rate.

### Video Inputs

The AVN420 includes one BNC composite input and one S-Video input for connecting video source equipment.

### Audio Inputs

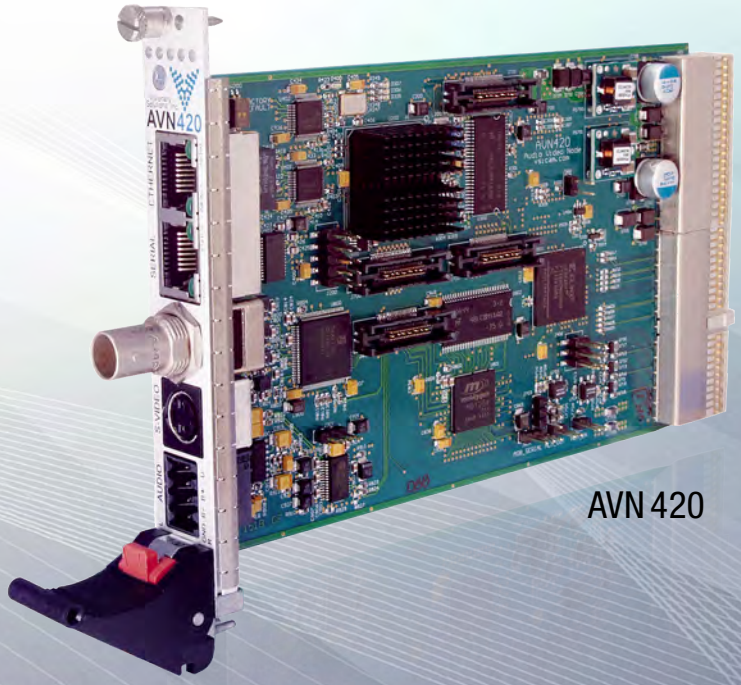
A terminal block connector provides audio inputs for Balanced and Unbalanced connections. This allows for easy onsite connections regardless of the cabling outputs of the audio source. The AVN420 features user control of audio parameters, including mute, pre-amp and volume.

### External Device Connections

The AVN420 includes a serial connection via an RJ-45 connector. This connector can be used as an RS-232 port (full-duplex, no hand shaking) or an RS-422 (full-duplex) port. These ports allow the AVN420 to interface with external devices such as terminal emulation equipment.

### Management & Configuration

The AVN 420 can be managed and configured via a console menu, a web interface or the AVN Control Protocol API. Internet protocols such as TCP/IP and HTTP are also supported.




AVN 420

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# PACKETV® AVN 420 Encoder

## H.264 SD Encoder Blade

The AVN 420 is designed to be enclosed in the MPP200 or MMP1700 chassis. The MPP200 is a durable, single blade enclosure and the MPP1700 is a high density, rack mountable blade system.

## *Specifications*

### Input/Output

- Audio connector provides input for right/left, balanced and unbalanced audio
- S-Video connector provides input for a Y/C video cable
- CVBS connector provides input for composite video sources
- RCA type composite connections via adaptor
- Serial Connector for RJ-45 connector which allows RS-232C (full duplex, no handshaking) and RS-422 (full duplex) communication

### Video Encoding

- h.264 MPEG-4 AVC Compression
- Main Profile at Level 3 (MP @L3)
- 100Kbps to 4000Kbps (4Mbps)
- IGMP v1, v2, v3

### Video Resolutions

| NTSC | PAL |
|---|---|
| 720x480 | 720x576 |
| 480x480 | 576x576 |
| 320x480 | 360x576 |
| 320x240 | 360x288 |
| 160x120 | 176x144 |

### Audio Encoding

- MPEG-1 Layer II stereo
- 128kbps to 384kbps
- MPEG-2 AAC stereo
- 8kbps to 384kbps

### Dimensions

(W x D x H)
20 x 131 x 175 (0.8" x 5.2" x 6.9")

### Weight

160g or .35 lb. (approximate)

### Power Input

- DC Input 3 Watts
- MPP200 Chassis 100-240VAC 50/60Hz Adapter
- MPP1700 Chassis 100-240VAC 50/60Hz

### Environmental

- Operating Temperature -10°C to 50°C (14°F to 122°F)

### Compliance

- CE, UL Listed I.T.E E257717
- EMC: FCC Part 15 Class A or B [MPP200] Class B, EN55022 [MPP1700] Class A, EN55022 EN61000-3-2, EN61000-3-3, EN55024
- SAFETY: EN60950-1

## Related Products

- **Extended Product Warranty**
- **MPP1700**
- **MPP200**
- **PackeTV® IPTV System**
- **PackeTV® STB A140**
- **PackeTV® STB H140**
- **PackeTV® System Protection**

AVN 420 in MPP200 Enclosure

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# AVN Encoder Comparison

| | AVN **443** | AVN **441** | AVN **422** | AVN **420** | AVN **220** | AVN **210** | AVN **200** |
|---|---|---|---|---|---|---|---|
| **VIDEO COMPRESSION** | H.264 (MPEG-4 Part 10/AVC) | H.264 (MPEG-4 Part 10/AVC) | H.264 (MPEG-4 Part 10/AVC) | H.264 (MPEG-4 Part 10/AVC) | MPEG-2 | MPEG-2 | MPEG-2 |
| **BITRATE** | HD 5-20 Mbps<br>SD 2-10 Mbps | HD 5-20 Mbps<br>SD 2-10 Mbps | HD 5-20 Mbps<br>SD 2-10 Mbps | 100 kbps to 4 Mbps | 1.5 to 15 Mbps | 1.5 to 7.5 Mbps | 1.5 to 7.5 Mbps |
| **FORMAT** | 1080p60 to 480i59 | 1080p60 to 480i59 | 1080p60 to 480i59 | D1 to 1/2 CIF | D1 to CIF | D1 to CIF | D1 to CIF |
| **ANALOG VIDEO INPUT** | N/A | Composite BNC<br>Component | N/A | Composite BNC<br>S-Video | Composite BNC<br>S-Video | Composite BNC<br>RCA, S-Video | Composite BNC<br>S-Video |
| **DIGITAL AV INPUT** | HDMI / DVI-D<br>SDI (SD, HD, 3G)<br>w/Loop Through | HDMI / DVI-D | HDMI / DVI-D | N/A | N/A | N/A | N/A |
| **AUDIO COMPRESSION** | MPEG1-L2, AAC | MPEG1-L2, AAC | MPEG1-L2, AAC | MPEG1-L2, AAC | MPEG1-L2 | MPEG1-L2 | MPEG1-L2 |
| **AUDIO INPUT (STEREO)** | Embedded, Unbal & Bal, Terminal Block<br>RCA | Embedded, Unbal & Bal, Terminal Block<br>RCA | Embedded, Unbal & Bal, Terminal Block | Unbal & Bal<br>Terminal Block | Unbal & Bal<br>Terminal Block | Unbalanced RCA<br>Balanced XLR | Unbalanced<br>3.5mm Stereo |
| **AUDIO INPUT GAIN** | Preamp w<br>Volume & Mute | Preamp w<br>Volume & Mute | Preamp w<br>Volume & Mute | Preamp w<br>Volume & Mute | Preamp w<br>Volume & Mute | Preamp w<br>Multi Controls | None |
| **MANAGEMENT** | Browser<br>PackeTV<br>Telnet<br>Serial (RJ-45) | Browser<br>PackeTV<br>Telnet<br>Serial (RJ-45) | Browser<br>PackeTV<br>Telnet<br>Serial (RJ-45) | Browser<br>PackeTV<br>Telnet<br>Serial (RJ-45) | Browser<br>PackeTV<br>Telnet<br>Serial (RJ-45) | Browser<br>PackeTV<br>Telnet<br>RS-232 | Browser<br>PackeTV<br>Telnet<br>RS-232<br>RS-422 |
| **FORM FACTOR** | 2x Slot Blade | 2x Slot Blade | 1x Slot Blade | 1x Slot Blade | 1x Slot Blade | 1 RU Rack-mount | Box |
| **SMPTE-2022 FEC** | Yes | Yes | Yes | No | No | No | No |
| **CC CLOSED CAPTIONING** | Yes (EIA-608 & EIA-708) (SDI Only) | Yes (EIA-608)<br>(Composite Only) | No | No | Yes (EIA-608) | Yes (EIA-608) | Yes (EIA-608) |
| **MULTICAST** | Yes (IGMP v1-3) | Yes (IGMP v1-3) | Yes (IGMP v1-3) | Yes (IGMP v1-3) | Yes (IGMP v1, v2) | Yes (IGMP v1, v2) | Yes (IGMP v1, v2) |
| **POWER REQ** | 100 - 240V<br>4.75 watt | 100 - 240V<br>4.25 watt | 100 - 240V<br>4.25 watt | 100 - 240V<br>3.0 watt | 100 - 240V<br>4.75 watt | 100 - 240V<br>7.0 watt | 100 - 240V<br>5.6 watt |

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# PACKETV® MPP 1700 Enclosure

## Multi-Slot Chassis for AVN-Series Encoder Blades

Visionary Solutions' Internet Protocol TV encoders can turn video from any analog, HDMI, DVI-D, or HD-SDI source into full-screen, full resolution digital video, suitable for broadcast over public and private networks in real time.

IPTV is the next big step in audio and video media. There's no longer any reason to design, install and maintain a separate infrastructure for AV transport and communications, when you already have an IP network.

## *Features*

### High Density 17-Slot Chassis

The MPP1700 holds up to 17 single-slot AVN-series encoder blades, up to 8 double-slot blades or any combination, all within a 3RU rack space.

### Stand-Alone or Rack Mounted

Equip your MPP1700 with two PSA200 power supplies to ensure against any equipment failures. Should one power supply fail, the second will automatically take over to protect you against any downtime.

### Superior Cooling

The MPP1700 has top and bottom vents in its cover to allow for proper cooling. Airflow is directed out of the rear of the unit. Three fan ports and ample airflow throughout ensure fail-safe thermal management of the Media Processing Platform.

### Hot Swappable Blades

No need to power down the chassis when making blade changes. Both the encoder and power supply blades can be inserted or removed while the chassis is fully powered.

### Convenient Orientation

The MPP1700 is oriented such that the blade insertion, cabling and indicators are all facing the front of the rack. Only the AC power connection is located in the back of the unit.

### Standard 19" Rack Mount

The MPP1700 is 3RU high and mounts in a standard 19" equipment rack.

The MPP1700 shown with 17 SD encoder blades and two PSA200 power supplies installed

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# PACKETV® MPP 1700 Enclosure

## Multi-Slot Chassis for AVN-Series Encoder Blades

The MPP1700 Media Processing Platform is a high density system offering a number of slots where VSI encoder blades, such as the AVN420 or AVN443, can be installed.

## *Specifications*

### Capacity

- Holds up to 17 AVN 220/420/422 encoder blades or up to 8 AVN441 or AVN443 blades, or a combination
- Requires 1 or 2 PSA200 power supplies

### Dimensions

- (W x D x H) 482.6 x 241.3 x 133.4 (19" x 9.5" x 5.25")
  3 RU (rack units) high

### Weight

- 1130g or 2.5 lbs. (approximate)

### Power

- AC Input: 100-240 V~ (VAC), 3A; 50-60 Hz
- Rating Information: 100-240V~, 50-60 Hz, 3A
- Fuse Rating: 250V, 3.15A, SlowBlow Double pole/neutral fusing. For continued protection against fire, replace fuse with same type and rating.
- IEC C13/14

### Compliance

- CE, UL Listed I.T.E. E257717
- EMC: FCC Part 15 Class B

### Optional

- PSA200 power supply (one or two)
- Unbalanced audio cable for AVN series blades
- Single blanker plate
- Double blanker plate
- Extended Product Warranty

### Includes

- US IEC Power Cable
- RS-232 cable
- User's manual
- Limited 12-month product warranty

## Related Products

- **Extended Product Warranty**
- **PSA200**
- **BPT2**
- **BPT1**
- **PackeTV® System Protection**

MPP 1700 Chassis

PACKETV®

# PSA 200 Power Supply

## Power Supply for MPP 1700 Chassis

The PSA 200 is a durable, hot swappable power supply designed specifically for Visionary Solutions' MPP1700 high density blade enclosure.

Install a single PSA200 to power the MPP1700.

Install a second PSA200 for a redundant power supply.

## *Features*

### AC Power

The PSA200 is an international AC input (100-240V AC, 200 Watt) power supply provided for use within Visionary Solutions' MPP1700 IPTV Media Processing Platform.

### Compact PCI Standard Compliant

The power supply is 3RU high by 8HP wide.

### Dual Redundant Power Option

The PSA200 power supply can be used singly or in tandem for dual redundant support. Should one unit fail the other takes over automatically.

### Hot Swappable

No need to power down the chassis to make a change. If the MPP1700 chassis has two PSA200 power supplies and one fails, simply unplug it and plug in another without ever losing power to the chassis or its encoders.

PSA 200 Power Supply

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# PACKETV® PSA 200 Power Supply

## Power Supply for MPP 1700 Chassis

The PSA200 populates slot 18 and 20 of the MPP1700.

Slots 1-17 on the chassis can be filled with any VSI blade product. At least one of the power supply slots must be filled.

Achieve dual redundant power supply support by populating both slots 18 and 20.

## *Specifications*

### Power

- AC Input: 100-240 V~ (VAC), 3A; 50-60 Hz
- Input Connections: J1 PIN 46 Neutral, PIN 47 Line, PIN 45 Ground
- Outputs: V1 +5V/40A, V2 +3.3V/40A, V3 +12V/5A, V4 -12V/2A.
- Note: The total output power is not to exceed 200 watts with 250 Linear Feet per Minute (LFM) of forced air.
- Protective Earthing: The PSA200 must be properly grounded to mains protective earthing termination at end use.
- Fusing: In case of failure, the PSA200 must be returned to VSI. There are no serviceable parts in the power supply.

### Compliance

- CE, UL Listed I.T.E. E257717
- EMC: FCC Part 15 Class B

### Dimensions

- (W x D x H)
- 40.6 x 165.1 x 128.7 (1.60" x 6.5" x 5.07") without handle
- Depth with handle: 209.6 (8.25")

### Weight

- 800g or 1.75 lbs. (approximate)

### Includes

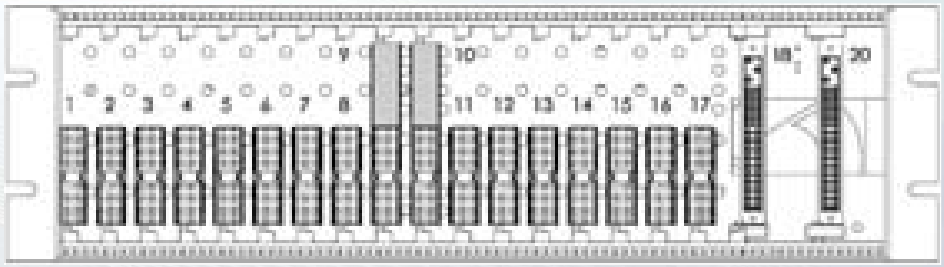
- User's manual
- Limited 12-month product warranty

### Opional

- Extended Product Warranty

## Related Products

- **Extended Product Warranty**
- **MPP1700**
- **PackeTV® System Protection**




PSA200 populates Slots 18 & 20 of the MPP1700

PACKETV®

# MPP 200 Enclosure

## 2 Slot Chassis for AVN-Series Encoder Blades

Visionary Solutions' Internet Protocol TV encoders can turn video from any analog, HDMI, DVI-D, or HD-SDI source into fullscreen, full resolution digital video, suitable for broadcast over public and private networks in real time.

IPTV is the next big step in audio and video media. There's no longer any reason to design, install and maintain a separate infrastructure for AV transport and communications, when you already have an IP network.

The most cost-effective and space-efficient way to encode digital video for network use is through one of Visionary Solutions' Media Processing Platforms. Each is a high density system offering a number of slots where VSI encoder blades, such as the AVN420 or AVN443, can be installed.

## *Features*

### Compact Two-Slot Chassis

Holds one or two single-slot AVN-series encoder blades or one dual-slot blade in a small form factor.

### Stand-Alone or Rack Mounted

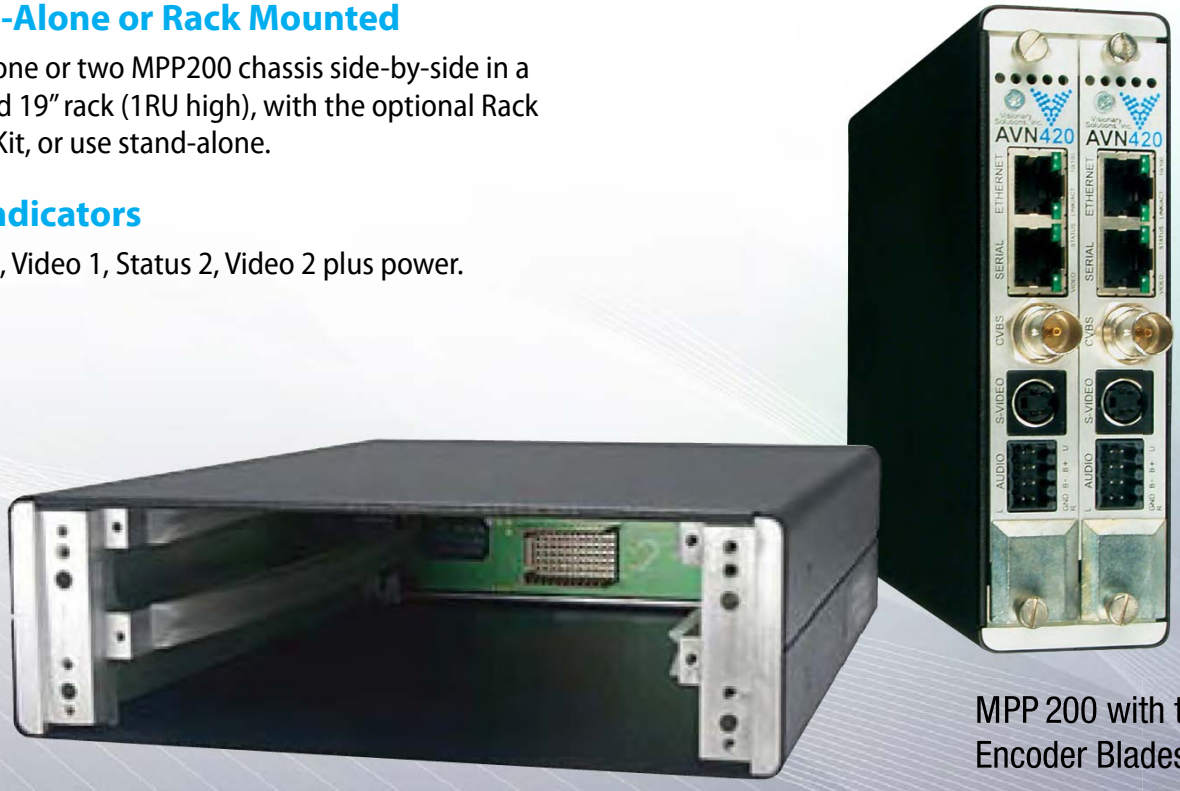
Mount one or two MPP200 chassis side-by-side in a standard 19" rack (1RU high), with the optional Rack Mount Kit, or use stand-alone.

### LED Indicators

Status 1, Video 1, Status 2, Video 2 plus power.

### External Power Supply

The MPP200 uses a power brick (DC) which is connected to the back of the unit.




MPP 200 with two AVN 420 Encoder Blades Installed

MPP 200 2-Blade Enclosure

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# PACKETV® MPP 200 Enclosure

## 2 Slot Chassis for AVN-Series Encoder Blades

The MPP200 is a 2-slot platform designed to stand alone or be rack mounted. One end of the chassis has LED status indicator lights and DC power input; encoder blades install into the other end.

## *Specifications*

### Capacity

Holds 1 or 2 AVN 220/420/422 encoder blades or 1 AVN441 or AVN443 blade

### Dimensions

(W x D x H)

142.5 x 196.3 x 43.2
(5.61" x 7.37" x 1.74")

1 RU (rack unit) high

### Weight

1130g or 2.5 lbs. (approximate)

### Power

External power supply 5V DC, 4A (power brick)

2 pin jack w/ screw locks

### Compliance

CE, UL Listed I.T.E. E257717

EMC: FCC Part 15 Class B

### Includes

DC Power Supply

US IEC Power Cable

RS-232 Cable

User's manual

Limited 12-month warranty

### Optional

Unbalanced audio cable for AVN series blades

MPP200 Rack Mount Kit

Single blanker plate

Extended Product Warranty

## Related Products

- **MPP200 Rack Mount Kit**
- **Extended Product Warranty**
- **BPT1**
- **PackeTV® System Protection**

MPP 200 Rear

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PACKETV®

# PackeTV® STB H140

## High Definition (HD) IPTV Set Top Box (STB) in a Mountable Enclosure

### *Specifications*

| | |
|---|---|
| **SIZE AND WEIGHT** | 140mm x 114mm x 40mm. 320g (excluding accessories and packaging) |
| **INPUTS** | 1 x Ethernet 10/100 BaseT via RJ-45 shielded connector |
| **OUTPUTS** | HDMI 1.3a. with HDCP and CEC 10-way Mini-DIN for Composite video, Component (YPrPb), RGB, S-Video and analogue audio. S/PDIF (optical). 2x USB2.0. RS232 serial connector |
| **POWER** | 5V DC at 1.5A via external power supply<br>Less than 8W typical usage (external supply input voltage 100-240V AC 50-60Hz 3A max) |
| **CODECS** | MPEG-2 MP@HL.MPEG-4 pt10 AVC/H.264 HP@L4 |
| **VIDEO RESOLUTIONS** | Decodes up to 720p and 1080i. Displays up to 1080p |
| **GRAPHICS RESOLUTIONS** | HD graphics up to 1280x720 |
| **AUDIO** | Analogue stereo audio out.Stereo and Dolby 5.1 surround via S-PDIF and HDMI. Dolby Digital+ pass through to external decoder |
| **SECURITY** | Wide selection of DRM and Conditional Access support.<br>HDCP on HDMI Macrovision on SD outputs (option) |
| **MEMORY** | 128MB Flash, 256MB RAM |
| **FRONT PANEL LEDS** | Power on/IR command received (Red) |
| **OPERATING ENVIRONMENT** | ETS 300-019-1-3 Class 3.1 |
| **EMC CONFORMANCE** | FCC Part 15 class B. 2004/108/EC EN55022 |
| **SAFETY APPROVALS** | CAN/ CSA-C22.2 No. 60950-1-03. EN60950 |
| **ROHS** | 2002-95-EC |
| **WEEE** | 2002-96-EC |
| **OPERATING TEMPERATURE** | 0°C (32°F) to 40°C (104°F) |
| **STORAGE HUMIDITY** | 5% to 95% RH (non-condensing) |
| **STANDARD ACCESSORIES** | Remote control (510-710)<br>Power supply with regional power cord |

VISIONARY SOLUTIONS
Innovative Network Video Solutions

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PACKETV®

# PackeTV® STB A140

## High Definition (HD) IPTV Set Top Box (STB)

### *Specifications*

| | |
|---|---|
| **SIZE AND WEIGHT** | 114mm x 100mm x 35mm. 280g (excluding accessories and packaging) |
| **INPUTS** | Ethernet 10/100 BaseT via RJ-45 shielded connector |
| **OUTPUTS** | HDMI 1.3a. (excl. Deep colour and DTS audio) with HDCP. S/PDIF (optical). USB2.0. 10-way Mini-DIN for Composite video, Component (YPrPb),RGB, S-Video and analogue audio. RF Mod and loop through. |
| **POWER** | 5V DC at 1.5A via external power supply Less than 8W typical usage (external supply input voltage 100-240V AC 50-60Hz, 0.8A max, output 5VDC 3A) |
| **CODECS** | MPEG-2 MP@HL. MPEG-4 pt10 AVC/H.264 HP@L4 |
| **VIDEO RESOLUTIONS** | Decodes up to 720p and 1080i. Displays up to 1080p |
| **GRAPHICS RESOLUTIONS** | HD graphics up to 1280x720 |
| **AUDIO** | Stereo audio and Dolby 5.1 surround via S-PDIF and HDMI. Dolby Digital+ pass through to external decoder |
| **SECURITY** | Wide selection of DRM and Conditional Access support. Macrovison (optional), CGMS-A |
| **MEMORY** | 128MB Flash, 256MB RAM |
| **FRONT PANEL LEDS** | Power on/IR command received (Red) |
| **OPERATING ENVIRONMENT** | ETS 300-019-1-3 Class 3.1 |
| **EMC CONFORMANCE** | FCC Part 15 class B. 2004/108/EC EN55022 |
| **SAFETY APPROVALS** | CAN/ CSA-C22.2 No. 60950-1-03. EN60950 |
| **ROHS** | 2002-95-EC |
| **WEEE** | 2002-96-EC |
| **OPERATING TEMPERATURE** | 0°C (32°F) to 40°C (104°F) |
| **STORAGE HUMIDITY** | 5% to 95% RH (non-condensing) |
| **STANDARD ACCESSORIES** | Remote control (510-710) |
| | Power supply with regional power cord |
| | Anti-slip base |

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